Data Format and Supporting Documentation for WMO Members to Use When Providing Digital Historical Data for GCOS Surface Network Sites to the National Climatic Data Center

Part 1: General Description of Requested Data and Information

Meteorological Data:

Participating Members are asked to provide historical meteorological data in digital form from all GCOS Surface Network (GSN) stations. All digital data that can be made available for each station is requested. The historical data should be provided at one time. Details of the daily and monthly formats for the historical data are described in Parts 2 and 3, respectively. Details of the station history format are described in Part 4.

Meteorological data in a form that is not digital cannot be processed at this time. However, if some observations are available only as non-digital data, information about this data is requested. Copies of the data are also requested.

Here is a list of the meteorological variables that participating Members are asked to provide. Please see "Notes:" after the list for additional information and clarification:

1. Mean daily temperature
2. Daily maximum temperature
3. Daily minimum temperature
4. Mean daily station pressure
5. Mean daily station pressure corrected to sea level
6. Total daily precipitation

7. Mean monthly temperature
8. Mean monthly maximum temperature
9. Mean monthly minimum temperature
10. Mean monthly station pressure
11. Mean monthly station pressure corrected to sea level
12. Total monthly precipitation

Notes:

A "mean", or average, is calculated by using the current method of the Member that operates the station. Each Member is asked to describe the method used.

"Daily" is each day of each month of each year that observations have been taken at a GSN station. It is all data days. In a similar way, "monthly" is each month of each year that observations have been taken at a GSN station.

If frozen precipitation is observed and will be included in the total precipitation, the water equivalent amount of frozen precipitation should be used.

Data Set Documentation:

In addition to data sets containing the original observations at a GSN station, some Members may have produced a homogenized data set or an adjusted data set using observations from nearby sites. In such cases, Members are requested to provide both the original and modified data set along with appropriate documentation. Knowledge about processing that has already been done on a data set is important to understanding the data.

Station History Data (Metadata):

Stations sometimes change location, instrumentation, environment, schedules, and other parameters. Knowledge about these parameters is important to understanding the meteorological data. Participating Members are asked to provide historical information about these station changes for the stations that they operate.

Ideally, historical station information should include the following parameters:

Station identification
Station name
Member name
Dates when changes occurred (year-month-day)
Latitude
Longitude
Elevation
Observation schedule and procedures
Types of instruments used for observations
Height of instruments above ground
Methods used to calculate mean, or average
Environment within 10 meters of the instruments
Land use in 10 square kilometers around the station

Sending the Data/Metadata:

You are kindly requested to send the historical data and related metadata from GSN stations by 15 December 1999 to:

World Data Center A for Meteorology
National Climatic Data Center
Federal Building
151 Patton Avenue, Room 120
Asheville, NC 28801-5001, U.S.A.
Telephone Number: Data Center Director - 828-271-4474
Fax Number: 828-271-4246
Email: Internet wdca@ncdc.noaa.gov

Part 2: Formats and Media of Requested Daily Data

Daily Meteorological Data:

Historical meteorological data should be provided on magnetic tape cartridges, standard 3½-inch diskettes, or zip disks. The magnetic tape cartridges should be of type “3480" or type “3590", with no internal digital label (unlabeled tape).

All meteorological data should be digital data, in ASCII compatible format, and in fixed length records. Each record provides one daily observation of each of the six meteorological variables from one station. Each record is 61 bytes, or character positions, long. The details are as follows:

GSN DAILY METEOROLOGICAL DATA FORMAT

Field Number	Field Name	Field Width	Field Positions
001	WMO STATION ID.	5	001-005
002	YEAR	4	006-009
003	MONTH	2	010-011
004	DAY OF MONTH	2	012-013
005	HOUR OF OBSERVATION FOR MEAN DAILY TEMPERATURE	2	014-015
006	METEOROLOGICAL VALUE FOR MEAN DAILY TEMPERATURE	6	016-021
007	HOUR OF OBSERVATION FOR MAXIMUM DAILY TEMPERATURE	2	022-023
008	METEOROLOGICAL VALUE FOR MAXIMUM DAILY TEMPERATURE	6	024-029
009	HOUR OF OBSERVATION FOR MINIMUM DAILY TEMPERATURE	2	030-031
010	METEOROLOGICAL VALUE FOR MINIMUM DAILY TEMPERATURE	6	032-037
011	HOUR OF OBSERVATION FOR MEAN DAILY STATION PRESSURE	2	038-039
012	METEOROLOGICAL VALUE FOR MEAN DAILY STATION PRESSURE	6	040-045
013	HOUR OF OBSERVATION FOR MEAN DAILY STATION PRESSURE CORRECTED TO SEA LEVEL	2	046-047
014	METEOROLOGICAL VALUE FOR MEAN DAILY STATION PRESSURE CORRECTED TO SEA LEVEL	6	048-053
015	HOUR OF OBSERVATION FOR TOTAL DAILY PRECIPITATION	2	054-055
016	METEOROLOGICAL VALUE FOR TOTAL DAILY PRECIPITATION	6	056-061

The fields are now further described.

FIELD 001

Field 001 is the World Meteorological Organization (WMO) station identifier for the station whose data is in this record. The WMO station identifier is a number and is five digits long. An example is 12345.

FIELD 002

Field 002 is the year (Gregorian calendar) when the data were observed. The year has four digits. For example, “1995".

FIELD 003

The month (01-12), when the data was observed, is in this field. The month has two digits. An example is 03 (March) or 11 (November). If the month is less than 10, the first digit should be zero (0).

FIELD 004

This field contains a two-digit integer that represents the day of the month when the data was observed (01-31). An example is 01 or 24. If the day is earlier than day 10, the first position should be a zero (0).

FIELDS 005, 007, 009, 011, 013, 015

This field contains a two-digit integer that represents the hour of the day (01-24) when the observation was made. An example is 03 or 21. If the hour is earlier than hour 10, the first position should be a zero (0). The hour 00 should not occur, but 24 is acceptable. If the observation was not made on an hour, the value should be the nearest hour: For example, 0730 becomes 08 and 1715 becomes 17. The hour should be in Coordinated Universal Time (UTC).

FIELD 006

This field contains the daily value of the mean daily temperature meteorological variable. The measurement unit should be degrees Celsius (C) and accuracy should be 0.1. Here are two examples of daily values for this variable:

TYPE	EX. 1	EX. 2
Temperature	-011.0	0010.3

The arithmetic sign should be placed at the left side. The plus sign (+) is optional. A zero (0) may be used instead of the plus sign.
The value is right justified. Any unused positions at the left should contain zeroes (0). The decimal point is in the second position from the right side.

A value of zero (0) should be indicated by 0000.0 in this field.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the daily value is missing, unavailable, or suspect.

FIELD 008

This field contains the daily value of the maximum daily temperature meteorological variable. The measurement unit should be degrees Celsius (C) and accuracy should be 0.1. Here are two examples of daily values for this variable:

TYPE	EX. 1	EX. 2
Temperature	-011.0	0010.3

The arithmetic sign should be placed at the left side. The plus sign (+) is optional. A zero (0) may be used instead of the plus sign.
The value is right justified. Any unused positions at the left should contain zeroes (0). The decimal point is in the second position from the right side.

A value of zero (0) should be indicated by 0000.0 in this field.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the daily value is missing, unavailable, or suspect.

FIELD 010

This field contains the daily value of the minimum daily temperature meteorological variable. The measurement unit should be degrees Celsius (C) and accuracy should be 0.1. Here are two examples of daily values for this variable:

TYPE	EX. 1	EX. 2
Temperature	-011.0	0010.3

The arithmetic sign should be placed at the left side. The plus sign (+) is optional. A zero (0) may be used instead of the plus sign.
The value is right justified. Any unused positions at the left should contain zeroes (0). The decimal point is in the second position from the right side.

A value of zero (0) should be indicated by 0000.0 in this field.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the daily value is missing, unavailable, or suspect.

FIELD 012

This field contains the daily value of the mean daily station pressure meteorological variable. The measurement unit should be hectopascals (hPa) and accuracy should be 0.1. Here are two examples of daily values for this variable:

TYPE	EX. 1	EX. 2
Pressure	0993.6	1013.6

The value is right justified. Any unused positions at the left should contain zeroes (0). The decimal point is in the second position from the right side.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the daily value is missing, unavailable, or suspect.

FIELD 014

This field contains the daily value of the mean daily station pressure corrected to sea level meteorological variable. The measurement unit should be hectopascals (hPa) and accuracy should be 0.1. Here are two examples of daily values for this variable:

TYPE	EX. 1	EX. 2
Pressure	0993.6	1013.6

The value is right justified. Any unused positions at the left should contain zeroes (0). The decimal point is in the second position from the right side.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the daily value is missing, unavailable, or suspect.

FIELD 016

This field contains the daily value of the total daily precipitation meteorological variable. The measurement unit should be millimeters (mm) and accuracy should be whole units (1). Here are two examples of daily values for this variable:

TYPE	EX. 1	EX. 2
Precipitation	000000	000124

The value is right justified. Any unused positions at the left should contain zeroes (0).

A value of zero (0) should be indicated by 000000 in this field.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the daily value is missing, unavailable, or suspect.

Data Set Documentation:

If an existing meteorological data set is used to provide the meteorological data requested above, documentation for this existing data set is requested.

Ideally, this documentation should be in digital form and ASCII compatible. It should be provided on standard 3½" diskette or by direct
transmission to a WDC-A computer. The format should be compatible with the new Digital Geospatial Metadata format, which in the U.S. has been
called "Federal Geographic Data Committee (FGDC)" format. It should be in English. It should describe the existing data set adequately, clearly, and briefly.

Directory Interchange Format (DIF) is less good but is also an acceptable format.

If these formats are not available, a document printed or written in English is requested.

Part 3: Formats and Media of Requested Monthly Data

Monthly Meteorological Data:

Historical meteorological data should be provided on magnetic tape cartridges, standard 3½-inch diskettes, or zip disks. The magnetic tape cartridges should be of type “3480" or type “3590", with no internal digital label (unlabeled tape).

All meteorological data should be digital data, in ASCII compatible format, and in fixed length records. Each record provides one monthly observation of each of the six meteorological variables from one station. Each record is 61 bytes, or character positions, long. The details are as follows:

GSN MONTHLY METEOROLOGICAL DATA FORMAT

Field Number	Field Name	Field Width	Field Positions
001	WMO STATION ID.	5	001-005
002	YEAR	4	006-009
003	MONTH	2	010-011
004	RECORD CODE	2	012-013
005	MEAN MONTHLY TEMPERATURE CODE	2	014-015
006	METEOROLOGICAL VALUE FOR MEAN MONTHLY TEMPERATURE	6	016-021
007	MEAN MONTHLY MAXIMUM TEMPERATURE CODE	2	022-023
008	METEOROLOGICAL VALUE FOR MEAN MONTHLY MAXIMUM TEMPERATURE	6	024-029
009	MEAN MONTHLY MINIMUM TEMPERATURE CODE	2	030-031
010	METEOROLOGICAL VALUE FOR MEAN MONTHLY MINIMUM TEMPERATURE	6	032-037
011	MEAN MONTHLY STATION PRESSURE CODE	2	038-039
012	METEOROLOGICAL VALUE FOR MEAN MONTHLY STATION PRESSURE	6	040-045
013	MEAN MONTHLY STATION PRESSURE CORRECTED TO SEA LEVEL	2	046-047
014	METEOROLOGICAL VALUE FOR MEAN MONTHLY STATION PRESSURE CORRECTED TO SEA LEVEL	6	048-053
015	TOTAL MONTHLY PRECIPITATION CODE	2	054-055
016	METEOROLOGICAL VALUE FOR TOTAL MONTHLY PRECIPITATION	6	056-061

The fields are now further described.

FIELD 001

Field 001 is the World Meteorological Organization (WMO) station identifier for the station whose data is in this record. The WMO station identifier is a number and is five digits long. An example is 12345.

FIELD 002

Field 002 is the year (Gregorian calendar) when the data were observed. The year has four digits. For example, “1995".

FIELD 003

The month (01-12) when the data was observed, is in this field. The month has two digits. An example is 03 (March) or 11 (November). If the month is less than 10, the first digit should be zero (0).

FIELD 004

This field contains a two-digit integer code which indicates that the record contains monthly data. The value of this code should be nine nine (99).

FIELD 005

This field contains a two-digit integer code that indicates the value in Field 006 is mean monthly temperature. The value of this code should be nine one (91).

FIELD 006

This field contains the monthly value of the mean monthly temperature meteorological variable. The measurement unit should be degrees Celsius (C) and accuracy should be 0.1. Here are two examples of monthly values for this variable:

TYPE	EX. 1	EX. 2
Temperature	-011.0	0010.3

The arithmetic sign should be placed at the left side. The plus sign (+) is optional. A zero (0) may be used instead of the plus sign.
The value is right justified. Any unused positions at the left should contain zeroes (0). The decimal point is in the second position from the right side.

A value of zero (0) should be indicated by 0000.0 in this field.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the monthly value is missing, unavailable, or suspect.

FIELD 007

This field contains a two-digit integer code that indicates the value in Field 008 is mean monthly maximum temperature. The value of this code should be nine two (92).

FIELD 008

This field contains the monthly value of the mean monthly maximum temperature meteorological variable. The measurement unit should be degrees Celsius (C) and accuracy should be 0.1. Here are two examples of monthly values for this variable:

TYPE	EX. 1	EX. 2
Temperature	-011.0	0010.3

The arithmetic sign should be placed at the left side. The plus sign (+) is optional. A zero (0) may be used instead of the plus sign.
The value is right justified. Any unused positions at the left should contain zeroes (0). The decimal point is in the second position from the right side.

A value of zero (0) should be indicated by 0000.0 in this field.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the monthly value is missing, unavailable, or suspect.

FIELD 009

This field contains a two-digit integer code that indicates the value in Field 010 is mean monthly minimum temperature. The value of this code should be nine three (93).

FIELD 010

This field contains the monthly value of the mean monthly minimum temperature meteorological variable. The measurement unit should be degrees Celsius (C) and accuracy should be 0.1. Here are two examples of monthly values for this variable:

TYPE	EX. 1	EX. 2
Temperature	-011.0	0010.3

The arithmetic sign should be placed at the left side. The plus sign (+) is optional. A zero (0) may be used instead of the plus sign.
The value is right justified. Any unused positions at the left should contain zeroes (0). The decimal point is in the second position from the right side.

A value of zero (0) should be indicated by 0000.0 in this field.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the monthly value is missing, unavailable, or suspect.

FIELD 011

This field contains a two-digit integer code that indicates the value in Field 012 is mean monthly station pressure. The value of this code should be nine four (94).

FIELD 012

This field contains the monthly value of the mean monthly station pressure meteorological variable. The measurement unit should be hectopascals (hPa) and accuracy should be 0.1. Here are two examples of monthly values for this variable:

TYPE	EX. 1	EX. 2
Pressure	0993.6	1013.6

The value is right justified. Any unused positions at the left should contain zeroes (0). The decimal point is in the second position from the right side.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the monthly value is missing, unavailable, or suspect.

FIELD 013

This field contains a two-digit integer code that indicates the value in Field 014 is mean monthly station pressure corrected to sea level. The value of this code should be nine five (95).

FIELD 014

This field contains the monthly value of the mean monthly station pressure corrected to sea level meteorological variable. The measurement unit should be hectopascals (hPa) and accuracy should be 0.1. Here are two examples of monthly values for this variable:

TYPE	EX. 1	EX. 2
Pressure	0993.6	1013.6

The value is right justified. Any unused positions at the left should contain zeroes (0). The decimal point is in the second position from the right side.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the monthly value is missing, unavailable, or suspect.

FIELD 015

This field contains a two-digit integer code that indicates the value in Field 016 is total monthly precipitation. The value of this code should be nine six (96).

FIELD 016

This field contains the monthly value of the total monthly precipitation meteorological variable. The measurement unit should be millimeters (mm) and accuracy should be whole units (1). Here are two examples of monthly values for this variable:

TYPE	EX. 1	EX. 2
Precipitation	000000	000124

The value is right justified. Any unused positions at the left should contain zeroes (0).

A value of zero (0) should be indicated by 000000 in this field.

Blank is a permitted value, but it does not indicate a value of zero. Blank indicates that the monthly value is missing, unavailable, or suspect.

Data Set Documentation:

If an existing meteorological data set is used to provide the meteorological data requested above, documentation for this existing data set is requested.

Ideally, this documentation should be in digital form and ASCII compatible. It should be provided on standard 3½" diskette or by direct transmission to a WDC-A computer. The format should be compatible with the new Digital Geospatial Metadata format, which in the U.S. has been called "Federal Geographic Data Committee (FGDC)" format. It should be in English. It should describe the existing data set adequately, clearly, and briefly.

Directory Interchange Format (DIF) is less good but is also an acceptable format.

If these formats are not available, a document printed or written in English is requested.

Part 4: Formats and Media of Requested Station History Data (Metadata)

Station History Data (Metadata):

Information in English about the history of each GSN station is requested. Ideally, this information should be in digital form and ASCII compatible, in fixed length records of 671 characters each. Each record should describe one historical change for one station. It should be provided by direct transmission to a WDC-A computer. If a Member has only a few stations, standard 3½-inch diskette or zip disk are alternatives.

The details are as follows:

GSN STATION HISTORY FORMAT

Field Number	Field Name	Field Width	Field Positions
(current section)			
01	CURRENT WMO STATION ID.	5	001-005
02	CURRENT LOCAL STATION ID.	8	006-013
(historical section)			
03	YEAR WHEN CHANGE OCCURRED	4	014-017
04	MONTH WHEN CHANGE OCCURRED	2	018-019
05	DAY WHEN CHANGE OCCURRED	2	020-021
06	WMO STATION ID.	5	022-026
07	LOCAL STATION ID.	8	027-034
08	LATITUDE DEGREES	2	035-036
09	LATITUDE MINUTES	2	037-038
10	LATITUDE SECONDS (optional)	2	039-040
11	LATITUDE HEMISPHERE	1	041-041
12	LONGITUDE DEGREES	3	042-044
13	LONGITUDE MINUTES	2	045-046
14	LONGITUDE SECONDS (optional)	2	047-048
15	LONGITUDE HEMISPHERE	1	049-049
16	MEMBER NAME	24	050-073
17	STATION NAME	24	074-097
18	HEIGHT OF STATION	5	098-102
19	HEIGHT OF BAROMETER	7	103-109
20	OBSTRUCTIONS WITHIN 10 M	1	110-110
21	LAND USE WITHIN 10 KM^2	1	111-111
22	INSTRUMENTS USED	200	112-311
23	OBSERVATION SCHEDULE	80	312-391
24	OBSERVATION PROCEDURES	200	392-591
25	METHOD TO CALCULATE MEAN	80	592-671

Station History formats are now described in more detail.

FIELD 01

Field 01 is the current value of the World Meteorological Organization (WMO) station identifier for the station. This is the current identifier, not a historical identifier. The WMO station identifier is a number and is five digits long. An example is 12345. If the station has not been assigned a WMO identifier, field 01 is blank.

FIELD 02

This field is the current value of the station identifier that is used by the Member that operates the station. This is the current identifier, not a historical identifier. Maximum length for this identifier is eight characters. The contents of the field should be right justified. If the identifier is shorter than eight characters, the unused positions at the left side should be filled with zeroes (0). An example is 00012345.

FIELD 03

A year (Gregorian calendar) when a change occurred is placed in this field as a four-digit integer. An example is 1982. Fields 03, 04 and 05 together make the historical date.

FIELD 04

A month when a change occurred is in this field as a two-digit integer (01-12). Two examples are 02 (February) and 12 (December). If the month is earlier than 10, the value is right justified, with a zero (0) in the position at the left side. Fields 03, 04 and 05 together make the historical date.

FIELD 05

This is a day when a change occurred (01-31). It is a two-digit integer. Two examples are 04 and 25. If the day is earlier than 10, the value is right justified, with a zero (0) in the position at the left side. If the value for this field is unknown, the field should remain blank. Fields 03, 04 and 05 make the historical date.

FIELD 06

Field 06 is like field 01, except that field 06 is the historical WMO station identifier that was used at the historical date indicated by fields 03, 04, and 05. If no WMO station identifier was assigned at that time, this field remains blank.

FIELD 07

Field 07 is like field 02, except that field 07 is the station identifier that was used at the historical date by the Member that operated the station.

FIELD 08

This is the degrees of latitude that was correct at the historical date. Degrees of latitude is a positive integer that has two digits (00-90). If the number is less than 10, the first position should be a zero (0). Two examples are 05, which is 5 degrees north or south of the equator, and 00, which is at the equator. Blank should not be used to indicate zero.

FIELD 09

This is the minutes of latitude that was correct at the historical date. Minutes of latitude is a positive integer that has two digits (00-59). If the number is less than 10, the first position should be a zero. Zero minutes is indicated by 00. Blank should not be used to indicate zero.

FIELD 10

Field 10 is seconds of latitude that was correct at the historical date. This is an optional field. If used, it is a positive integer that has two digits (00-59). If the number is less than 10, the first position should be a zero (0). Zero seconds is indicated by 00. If this field is not used, it is blank. However, blank should not be used to indicate zero.

FIELD 11

This field designates the hemisphere of the latitude at the historical date. The possible values are “N” for northern hemisphere and “S” for southern hemisphere.

FIELD 12

This field is the degrees of longitude that was correct at the historical date. Degrees of longitude is a positive integer that has three digits (000-180). If the number does not require three digits, it should be right justified, with zeroes (0) in the unused positions at the left side. Two examples are 025, which is 25 degrees east or west of the zero meridian, and 000, which is at the zero meridian. Blank should not be used to indicate zero.

FIELD 13

This field contains the minutes of longitude that was correct at the historical date. Minutes of longitude is a positive integer that has two digits (00-59). If the number is less than 10, the first position should be a zero (0). Zero minutes is indicated by 00. Blank should not be used to indicate zero.

FIELD 14

Field 14 is seconds of longitude that was correct at the historical date. This is an optional field. If used, it is a positive integer that has two digits (00-59). If the number is less than 10, the first position should be a zero (0). Zero seconds is indicated by 00. If this field is not used, it is blank. However, blank should not be used to indicate zero.

FIELD 15

This field designates the hemisphere of the longitude at the historical date. The possible values are “E” for eastern hemisphere and “W” for western hemisphere.

FIELD 16

This field contains the name, in English, of the Member that operated the station at the historical date. Please use 24 characters or less. The field is left justified. Any unused positions at the right should be blank.

FIELD 17

This field contains the station name, in English, that was used for the station at the historical date. Please use 24 characters or less. The field is left justified. Any unused positions at the right should be blank.

FIELD 18

This is the height, or elevation, of the station above (or below) mean sea level in whole meters at the historical date. The value should be an integer, which is right justified. Up to five positions can be used. The arithmetic sign, if needed, should be in the position at the far left. The plus sign (+) is optional. Any unused positions at the left should contain zeroes (0).

FIELD 19

The height, or elevation, of the barometer at the historical date is in meters with an accuracy of 0.1 meter. The value should be a decimal number, right justified, with the decimal point in the second
position from the right. Up to seven positions can be used. The arithmetic sign, if needed, should be in the position at the far left. The plus sign (+) is optional. All unused positions at the left should contain zeroes (0).

FIELD 20

This field has a one-digit integer value that describes the environment within 10 meters of the instruments at the historical date.

Value	Environment
(blank)	Unknown
0	No significant obstructions
1	Slightly obstructed
2	Mostly obstructed

FIELD 21

The land use, or type, within 10 square kilometers of the station at the historical date is described by this one-digit integer value:

Value	Land Use
(blank)	Unknown
0	Forest
1	Shrubland
2	Savannah
3	Grassland
4	Permanent Wetland
5	Cropland
6	Urban (population > 10,000)
7	Snow and Ice
8	Barren or Sparsely Vegetated
9	Water Bodies

FIELD 22

In this field, please describe briefly in English, in 200 characters or less, the instruments that were used at the station at the historical date. The contents should be left justified. Unused characters at the right side can remain blank.

FIELD 23

Please describe briefly in English, in 80 characters or less, the observation schedule that was used at the station at the historical date, including the hour of observation for each meteorological variable. The contents should be left justified. Unused characters at the right side can remain blank.

FIELD 24

Please describe briefly in English, in 200 characters or less, the observation procedure that was used at the station at the historical date. The contents should be left justified. Unused characters at the right side can remain blank.

FIELD 25

Please describe briefly in English, in 80 characters or less, the method used at the historical date to calculate means. The contents should be left justified. Unused characters at the right side can remain blank.